MicroVAX Diagnostic Monitor Release Notes

Order Number AA–GO3AR–TN

These release notes describe restrictions, undocumented features, and other essential information about the MicroVAX Diagnostic Monitor (MDM) Version 3.11, Release 128. These release notes supersede all other MDM documentation.

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Preface

These release notes describe new features, enhancements, and bug fixes for the MicroVAX Diagnostic Monitor (MDM) Version 3.11 Release 128 as they apply to diagnostic development.

Intended Audience

These release notes are intended for the following people:

- System managers who are installing MDM
- Individuals responsible for maintaining microVAX systems

Document Structure

These notes are organized as follows:

- Chapter 1 lists updates.
- Chapter 2 lists new features and enhancements.
- Chapter 3 lists problems and corrections.

Associated Documents

The following is a list of the available MDM documents:

- *MDM Programmer's Guide*
- *MDM Development Kit Installation Guide*
- *MDM User's Guide*
- *MDM Ethernet Server User's Guide*
- *MDM RA/RD Customer Release Notes*
- *MDM RA/RD Maintenance Release Notes*
- *MDM Hard Disk User's Guide*
- *MDM Reference Card*

Conventions

This book uses the following conventions:

KEY	Indicates a key on your keyboard.
CTRL/key	Indicates control keys. For example, Control C is shown as CTRL/C.
Bold print after prompt	Indicates user input.
UPPERCASE characters	Indicate input that you should type exactly as shown.
lowercase characters	Indicate input that you should replace with an appropriate word or phrase. For example, in the following interactive command: MDM>> **SELECT devicename** SELECT should be typed as shown, but *devicename* should be replaced with the actual name of a device.

Chapter 1
Updates

This chapter updates information necessary to run MicroVAX Diagnostic Monitor (MDM).

1.1 General MDM Updates

This section updates hardware and installation requirements.

1.1.1 One Megabyte System Support Restriction

This release requires a minimum of 2 megabytes of memory.

1.1.2 KXJ11 not supported on the KA640

The KXJ11 will not be supported on the KA640 cpu.

1.1.3 Device Diagnostic Support

Table 1–1 provides updates on device support.

Table 1–1: Device Diagnostic Support

Controller	Device	Revision	File Name
CPU	KA620	I	NAKAA
	KA630		
	KA640		
	KA650		
	KA655		
MEMORY	KA620	J	NAMSA
	MS630		
MEMORY	MS650	F	NAMTA

Table 1–1 (Cont.): Device Diagnostic Support

Controller	Device	Revision	File Name
DPV11	LP25	G	NALPA
	LP26		
	LP27		
	LG01		
	LG02		
RQDX2 & RQDX3	RX50	Q	NARXA
	RD32		
	RD33		
	RD52		
	RD53		
	RD54		
KDA50–Q & KLESI	RA81	N	NAKDA
	RA82		
	RA70		
	RA60		
	RC25		
TQK50	TK50	H	NATKA
	TK70		
DEQNA	QNA/DELQA	N	NAXQA
DLVJ1	–	D	NADLA
DZQ11 & DZV11	–	G	NADZA
DRV11–WA	–	I	NADRA
DRV11–J	–	E	NADRB
DPV11	–	G	NADPA
DMV11	–	I	NADMA
RRD50	–	H	NARRA
KMV11A (KMV1A)	–	F	NAKMA

Table 1–1 (Cont.): Device Diagnostic Support

Controller	Device	Revision	File Name
KMV11B (KMV1B)	–	F	NAKMA
IEQ11	–	B	NAIEA
DHQ11		K	NADHA
CXY08	–		
CXA16	–		
CXB16	–		
CXF32	–		
DHF11	–		
DHV11	–		
DFA01	–	E	NADFA
VCB01	–	F	NAVCA
KWV11–C	–	F	NAKWA
ADV11–DA	–	F	NAADA
AAV11–DA	–	G	NAAAA
AAV11–C	–	B	NAAAC
ADV11–C	–	B	NAADC
AXV11–C	–	E	NAAXA
VCB02	–	F	NAVCB
DSV11	–	G	NADSA
VSV11	VSV21–AA	E	NAVVA
	VSV21–CA		
	VSV90		
DRQ11–C	–	B	NADQA
LNV11	–	C	NALAA
LNV11	–	C	NALNA
TU81E	–	G	NATUA
TSV05	–	I	NATSA

Table 1–1 (Cont.): Device Diagnostic Support

Controller	Device	Revision	File Name
DRQ3B	–	E	NAQBA
IBQ01	–	C	NAIBA
IAV11–A	–	C	NAIAA
IAV11–B	–	C	NAIAB
IDV11–A	–	C	NAIDA
IDV11–B	–	F	NAIDB
IDV11–C	–	C	NAIDC
IDV11–D	–	C	NAIDD
MIRA	–	F	NAMIA
KXJ11	–	H	NAKXA
ADQ32	–	F	NAAQA
RV20	–	E	NARVA
DESNA	–	D	NACQA
DTC–04	–	B	NADTA
IGQ11	–	B	NAIGA
KWB11–W	–	B	NAKWB
KWV11–W	–	B	NAKWB
POLARSTAR	–	C	NAQCA
GS03–WD–DHV11	–	A	NAGSA
GS03–WD–DQZ11	–	A	NAGSB
LANCE	–	D	NALAN
DSSI	–	C	NADSI
VS550	–	C	NAVSA
KFQSA	RF30	D	NAKFA
DIV32		A	NADIA
DELIX[1]	–	D	NADXA

[1] Indicates diagnostics that are included on the media, but are not supported in the autoconfiguration information. To use these diagnostics the custom configuration commands must be used.

1.1.4 MDM System Notes and Updates

You will find a Software Performance Report (SPR) form in each kit. These SPR forms provide two functions. First, they are a means of letting the software developers know as soon as possible about problems found in the product. Secondly, they provide users a way to offer suggestions based on actual use of the product.

1.1.5 TK50 Load Times

Table 1–2 is a chart of TK50 and TK70 load times for MDM versions 114 through 127. Load time is the length of time necessary for a system to load and configure the diagnostics for the individual devices in the system. The listed times do not include the length of time needed for the monitor to load initially (the elapsed time from the boot command to the display of the disclaimer).

Table 1–2: TK Load Times (In minutes)

Release	TK50	TK70	TK50	TK70	TK50	TK70	TK50	TK70
	(CONFIG 1)		(CONFIG 2)		(CONFIG 3)		(CONFIG 4)	
114	07:49	na*	06:50	na*	19:52	na*	09:30	na*
115	25:55	na*	39:44	na*	35:23	na*	14:21	na*
116	09:33	na*	12:21	na*	24:49	na*	12:19	na*
116A	11:21	na*	09:47	na*	25:59	na*	12:54	na*
118	10:25	na*	10:30	na*	29:46	na*	13:06	na*
120	10:12	06:55	10:11	07:01	31:02	23:21	13:15	07:55

* Load times are listed in minutes. Versions before 120 did not support TK70 drives. No comparisons can be made between those versions and versions between 120 and 127.

Key to Configuration Devices

- Config 1 = CPU, MEM, DEQNA, RQDX2, DMV11, TK
- Config 2 = CPU, MEM, DEQNA, TK, TSV05, DMV11, KDA50, CXY08
- Config 3 = CPU, MEM, RQDX3, TK, DEQNA, DMV11, KDA50, RC25, DZV11, DZQ11, DPV11, KWV11–C
- Config 4 = CPU, MEM, DEQNA, RQDX3, TK, VCB02

Table 1–2 (Cont.): TK Load Times (in minutes)

Release	TK50	TK70	TK50	TK70	TK50	TK70	TK50	TK70
121	07:30	04:59	06:04	05:57	17:49	15:22	07:40	05:55
122	06:18	05:08	06:22	05:07	19:04	16:28	07:48	06:03
123	07:26	05:11	06:29	05:12	19:41	16:42	09:17	06:10
124	09:36	07:00	09:17	06:50	21:55	18:52	11:08	08:18
125	10:05	07:40	10:10	07:30	22:25	21:04	12:12	08:45
126	09:47	07:09	09:42	07:03	23:25	21:11	11:20	08:30
127	09:31	07:08	09:36	07:00	24:02	21:23	11:27	08:24
128	08:03	07:21	10:11	06:20	23:29	20:26	11:07	07:38

The difference of load times on the same system between KA650 CPU and MicroVAX CPU is less than 3%. The KA650 is slightly faster than the MicroVAX. Thus, load times are not CPU-dependent.

1.1.6 Order Number Reference

Table 1–3 lists order numbers for current diagnostics.

Table 1–3: Order Number Reference

Part Number	Title
ZNA01–C3	Customer Diagnostics on RX50
ZNA01–C5	Customer Diagnostics on TK50
ZNA02–GZ	MV DIAG MDM ENET CUST DOC
ZNA02–P5	MV DIAG MDM ENET CUST TK50
ZNA02–PH	MV DIAG MDM ENET CUST RL02
ZNA02–PM	MV DIAG MDM ENET CUST 1600 bpi MT
ZNABX–C3	Maintenance diagnostics on RX50
ZNABX–C5	Maintenance diagnostics on TK50
ZNABX–GZ	Maintenance documentation
ZNA07–H5	MV DIAG MDM ENET MAINT TK50
ZNA07–HH	MV DIAG MDM ENET MAINT RL02

Table 1–3 (Cont.): Order Number Reference

Part Number	Title
ZNA07–HM	MV DIAG MDM ENET MAINT 1600 bpi MT
ZNA07–GZ	MV DIAG MDM ENET MAINT DOC
ZNA08–C5	MV DIAG ULTRIX ENET MAINT TK50
ZNA08–CM	MV DIAG ULTRIX ENET MAINT 16 bpi MT
ZNA08–GZ	MV DIAG ULTRIX ENET MAINT DOC
ZNA09–GZ	MV DIAG ULTRIX ENET CUST DOC
ZNA09–P5	MV DIAG ULTRIX ENET CUST TK50
ZNA09–PM	MV DIAG ULTRIX ENET CUST 1600 bpi MT
ZNA10–C5	MV DIAG RA/RD CUST DIAG TK50
ZNA10–CM	MV DIAG RA/RD CUST DIAG 1600 bpi MT
ZNA11–H5	MV DIAG RA/RD MAINT DIAG TK50
ZNA11–HM	MV DIAG RA/RD MAINT DIAG 1600 bpi MT

1.1.7 Automatic Distribution of Diagnostics

A diagnostic contact has been designated for each geographic area within the U.S. (See Table 1–4.) Field personnel should work with their area contact for all diagnostic needs. This includes additions and deletions to the ADS mailing lists for all VAX, PDP–11, MicroVAX, MICRO–11, and KLAD systems, and any newly released system. They should also work with their area contact to resolve problems.

Table 1–4: Area Contacts for Diagnostic Distribution

Area	Contact	Direct	DTN	ENET Address
CENTRAL	CORINE GORDON	312–640–0301	421–5640	DECMAIL::GORDON
CSC–ATLANTA	ESTHER CREEK	404–953–6174	435–3293	DECMAIL@IPO
CSC–COLORADO	FRANK MENDEZ	719–548–5587	522–5587	NEXUS::MENDEZ
EAST CENTRAL	KAREN PICKETT	313–347–5406	471–5406	USFHSL::PICKETT
IN–DEC	MADDY VEGA	508–467–8274	262–8274	SENIOR::VEGA
MID–ATLANTIC	PAT KOZLOWSKI	215–283–4241	328–4241	DECMAIL@PHH
NEW YORK	BERNIE COUILLARD	212–884–6780	335–6780	OBIWAN::COUILLARD
NORTHEAST	PEARL MAGIERA	508–441–6624	288–6624	NERSW5::MAGIERA
SOUTH CENTRAL	CAROLYN DUERKSEN	214–702–4606	483–4606	DPOMAI::DUERKSEN
SOUTHERN	GWEN BRINKLEY	404–257–2455	351–2455	ODIXIE::GBRINKLEY
SOUTHWEST	PEGGIE ROSE_KOZO	714–261–4418	NONE	SWAM1::ROSE_KOZO
WESTERN	SUSAN BROWN	408–496–3014	521–3014	WR1FOR::BROWNSU
GIA	SONNY NEWSON	719–548–5499	522–5499	BSS::NEWSON

1.2 MDM Diagnostic Notes and Updates

All diagnostics have been rebuilt and are incompatible with previous versions of MDM. The diagnostics are source-compatible only. The following diagnostics have been revised for Version 3.11.

```
NAAAAG
NAADAF
NAADCB
NAAQAF
NAAXAE
NADIAA
NADMAI
NADSAG
NADSIC
NAIGAB
NAKAAI
NAKDAN
NAKXAH
NALAND
NAMIAF
NAMTAF
NARXAQ
NATUAG
NAXQAN
```

1.2.1 Kernel Exception Message Number Translations

Refer to the following kernel message chart for exception number translations.

```
The following is a complete list of MDM kernel messages.

EXCEPTION NO.   Acutal Message
(In Hex)

00000001 <normal successful completion>

The following errors are considered fatal by MDM:
```

```
00007C04        <bad parameter count>
00007C0C        <bad job or process creation>
00007C14        <bad string parameter length>
00007C1C        <bad access mode>
00007C24        <bad stack>
00007C2C        <bad object state>
00007C34        <bad object type>
00007C3C        <bad parameter value>
00007C44        <connect circuit completed>
00007C4C        <connect circuit pending>
00007C54        <connect circuit timeout>
00007C5C        <count overflow>
00007C64        <count underflow>
00007C6C        <debug signal>
00007C74        <device already connected>
00007C7C        <circuit disconnected by partner>
00007C84        <duplicate name>
00007C8C        <kernel stack not valid>
00007C94        <machine check>
00007C9C        <no access to parameter>
00007CA4        <no destination port>
00007CAC        <no job initialization specified>
00007CB4        <physical memory available>
00007CBC        <no I/O mapping register available>
00007CC4        <no message available>
00007CCC        <no object table entry available>
00007CD4        <no process page table available>
00007CDC        <no datapath register available>
00007CE4        <no pool available>
00007CEC        <no port available>
00007CF4        <no exit status value specified>
00007CFC        <no such device>
00007D04        <no such name>
00007D0C        <no such port>
00007D14        <such program>
00007D1C        <no such service>
00007D24        <no system page table entries available>
00007D2C        <no virtual address space available>
00007D34        <power recovery signal>
00007D3C        <quit signal>
00007D44        <remote port value>
00007D4C        <process exit signal>
00007D54        <remote system currently unreachable>
00007D5C        <SIGNAL>
00007D64        <remote system rejected username or password>
00007D6C        <bad message size>
00007D74        <referenced shareable image not present>
00007D7C        <unsupported program image format>
00007D84        <internal consistency failure>
00007D8C        <port on another bi node>
```

```
The following messages are alternate success codes

00007F01     <time has not been previously set>
00007F09     <expedited message>
00007F11     <previous job actually created area>
```

BLANK

Chapter 2
Enhancements and New Features

This chapter discusses enhancements and features which were added to MDM Version 3.11 Release 128.

2.1 New Features for Version 3.11—Release 128

The following new features and enhancements have been added to Version 3.11 Release 128. The MDM User's Guide has been updated for this release as well and the following information has been incorporated there as well as here. This information will only be maintained as part of these release notes for this current release.

2.1.1 Booting from the DSSI port with the RA/RD/RF kits

In version 3.11 of MDM, the RA/RD/RF kits will provide the capability of booting MDM from the DSSI port on a KA640. The kits will be available in both customer and maintenance form. The kits will be provided on TK50 and 1600 BPI media in the form of VMS savesets. These kits will be usable only on VMS systems. Ultrix systems will not be supported by these kits.

These kits will be in the form of a VMS installable image. They will come with a release note in the kit which will be moved into the SYS$HELP account. The kits will use the alternate Boot B/100 to cause MDM to be booted. The kits will leave the diagnostics and the boot files MDM.SYS and MDMDIA.SYS in the [SYS0.SYSEXE] account on the disk.

To use MDM once it has been installed on the media, the alternate boot command should be issued. For systems configured with a KA640 (MayfairII) and the RFxx connected to the DSSI, the command is in the form;

```
B/100 DIAn:          (n = 0 to 7 for the unit number)
```

For systems configured with an RFxx connected to a KFQSA, the command is as follows:

```
B/100 DUAn:          (n = 0 to 7 for the unit number)
```

The system will then prompt the user for the bootfile name. The name that should be passed is [SYS0.SYSEXE]MDM.SYS when booting from the KFSQA and [SYS0.SYSEXE]MDMDIA.SYS when booting from the KA640 (MayfairII) DSSI.

2.1.2 CTRL/C changes

CTRL/C will be modified such that upon entering CTRL/C, the most current twenty diagnostic mesages, including progress messages will be buffered. If the diagnsotic sends up more than twenty messages while in CTRL/C, the older messages will be dropped. Diagnostics will continue to run in all sections while in CTRL/C.

Chapter 3
Problems and Corrections

This chapter discusses problems and corrections for the current release. These corrections are divided into monitor and diagnostic problems.

3.1 Monitor Problems

Monitor problems are subdivided into five sections: Menu, CTRL/C Mode, Command Line Mode, CONFIGURE/IOADDRES, and Miscellaneous.

3.1.1 Menu Problems

When the Run exerciser is chosen in the Device Menu, the exerciser runs indefinitely. Discontinue the test by entering CTRL/C.

3.1.2 CTRL/C Mode Problems

3.1.2.1 CTRL/C with VCB01

VCB01—Test 7 sometimes goes into CTRL/C mode when CTRL/C is pressed once. At other times, such as when running multiple passes of test 7, pressing CTRL/C many times is necessary to enter CTRL/C mode. VCB02—Tests 1, 2, and 6, which used to hang after CTRL/C was pressed once, now enter MDM CTRL/C Mode when CTRL/C is pressed twice. The above problems may happen on more tests than indicated here.

3.1.2.2 GPX and CTRL/C

Entering CTRL/C discontinues the GPX (VCB01 or VCB02) systems. The VCB01 or VCB02 diagnostics discontinue after typing a HALT or CONTINUE command at the CTRL/C prompt. Other tests that may be running will continue when a continue is issued; the VCB tests will halt.

3.1.3 Command Line Mode Problems

3.1.4 IOADDRES, SYSTEM UTILITIES and CONFIGURE Problems

3.1.5 Miscellaneous Problems

3.1.5.1 RC25 - nakdal - Functional tests can give fatal bugcheck

When running the functional tests with pass set to 0 on the KDA50 diagnostic running on the RC25 with the KA650 the follwing fatal bugcheck will occur:

```
** Fatal Bugcheck, uVDOS V3.0. UNXINTEXC, unexpected interrupt
                                                    or exception

Job 000300D2, Program: nakda

  R0      ...     R4        R5      R6        R7
00000001 ...  00000005 00000001 00000000 00000005
7fffffff ...  000011ea 7ffffd18 80055bf0 80004e04
  R8      ...     AP        FP        SP        PC

KERNEL/INTERRUPT STACK

   80055BF4 04170000
 80055BF8 000096D4
 80055BFC 000000A0

System shutdown complete - use console to halt system
```

This occur on different pass numbers ranging from 1 to 137. However it usually occurs after running test 1.

3.1.5.2 Messages from RXs Are Not Correlated

Messages are unsynchronized while loading diagnostics from RX50 media after a RESET CONFIGURE command. For example, the message to put in the next diskette comes while the previous diskette is loading; the message that diagnostics were loaded comes one diskette late.

3.1.5.3 VMS and MDM Read the Clock from CPUs Differently

VMS and MDM read the clock from the same CPU differently. For example, if VMS is running on a system, executing the SHOW TIME command may produce the response:

```
2-Nov-1988  10:30:00
```

If VMS is shutdown and MDM is brought up immediately, its time will read

```
4-Dec-1988  12:50:00
```
The difference between the times depends on CPU. The time difference may cause problems if the time is changed in MDM and not changed when VMS is brought up again.

3.1.5.4 System loading much longer with KA650 firmware

When loading MDM on a system from any media format (tape, floppy, network), the µVDOS banner is displayed as soon as the system image is loaded into memory. Usually, only 5-10 seconds elapses from the time the µVDOS banner is displayed to the time that the MDM disclaimer screen is displayed. However, when loading a KA650 system with new firmware, this takes MUCH longer. The lines print slowly, with approximately a 20 second gap between each line printing. The firmware for the old board is "MC=02 FW=14". The firmware which exhibits this behavior is "MC=04 FW=45".

3.1.5.5 UNITS ENABLE and DISABLE don't work if unit # >15

The UNITS command in MDM allows the user to either ENABLE or DISABLE individual device units. Devices are able to have unit numbers anywhere from 0 to 1024. However, if either the UNITS ENABLE or the UNITS DISABLE command is entered with a Unit number greater than 15 the following message gets returned :

```
Invalid unit number, Unit number range 0-15
```

and the user has no way to either disable or enable any units declared by any devices if the unit numbers are greater than 15.

3.1.5.6 Devices disabling in config give wrong message

If the TK50 diagnostic is connected to the RQDX address, and the DHV11 diagnostic to the TK50 address, both diagnostics disable correctly. However, the message that prints out during the configuration is:

```
Device disabled by Monitor. No testing is possible
```

But when a sh conf full is executed, the message that appears with these diagnostics is:

```
Device disabled by diagnostic.
```

3.1.5.7 CTRL/T during test execution can hang system

One function of MDM that existed but was never officially supported was the CTRL/T function. This function would display memory information to the user 'on the fly'. In the past it never caused any problems, however, now it can can cause strange status 0 messages and also hang the system.

3.1.5.8 RRD40/50 not recognized when loaded over lance

When the above configuration is set up in a system,and the na09a(x) kit is loaded over the Lance the RRD does not get recognized.Below is what appears with the show bus command.

```
NAKAA          160000          000     0       CONNECTED
NAMTA          160002          000     0       CONNECTED
NAMDSI         160004          000     4       CONNECTED
NALAN          160006          000     4       CONNECTED
NAKDA          172150          154     4       CONNECTED
NATKA          174500          260     4       CONNECTED
NAXQA          174440          120     5       CONNECTED
NAZZZ          160334          300     4       CONNECTED
```

On the other hand, if you change the load device over to the DESQA and load the NA06A(x) kit then everything gets recognized correctly, as follows:

```
NAKAA          160000          000     0       CONNECTED
NAMTA          160002          000     0       CONNECTED
NAMDSI         160004          000     4       CONNECTED
NALAN          160006          000     4       CONNECTED
NAKDA          172150          154     4       CONNECTED
NATKA          174500          260     4       CONNECTED
NAXQA          174440          120     5       CONNECTED
NARRA          160334          300     4       CONNECTED
```

3.1.5.9 Reset config takes 1 hour w/rv20 on NA04 image

CONFIGURATION: microvax II,mem,tk50,rqdx3,cxf32,4 rv20's

When loading the above configuration via the NA04A image (tk50 tape drive) if one of the RV20's is connected in, and a configuation is done, it works fine until a reset config is entered.When the reset config- uaration command is entered followed by a return, the system just sits there, appearantly hung.However, after a period of about 1 hour it comes back to the MDM prompt.

3.1.5.10 Exercising system may only run 1 device

When running many different diagnostics trying to display messages onto the console at the same time, one of the diagnostics will eventually take over control and for the most part get all the cpu time. This is only seen during a system exerciser tests when many different diagnostics are running at the same time.

3.1.6 RA/RD/RF boot problems

3.1.6.1 RARD boot can give confusing Insert next disk message

If you are booting from an RARD kit and you connect in an invalid diagnostic name(i.e. one that is not present in the [sys0.sysexe] directory) then when you go to Configure the system you get a confusing message from the monitor prompting you to insert the next diskette.

As an example, when connecting in a diagnostic that does not actually exist and then configuring the system all the original diagnostics will load fine. However, when trying to load the diagnostic named FAKE, the following prompts were displayed:

```
Please remove the diskette.

Insert the next diskette in the same drive
and press the RETURN key.

If you can not insert the next diskette,
type 1 and press the RETURN key.
```

If at this point you hit another RETURN then you get reprompted the same as above. If you hit a 1 instead then the diagnostics that were loaded get configured and MDM can then be run normally with the connected diagnostic becoming a No Dg as it should.

3.1.6.2 RD boot off DSSI hangs after Reset Config/Config

One of the new features of 128 is the ability to boot the RA/RD/RF kits off the DSSI port of the mayfair 2. The monitor boots up(MDMDIA.sys image) and loads the diagnostics fine on the initial load. However, when you proceed to perform a Reset Configure either via CLM (Reset configure command) or Menu Mode(menu 5.4 - Activate Menu) followed by a Configure the monitor displays the following message:

```
The system is preparing for testing.

This may take several minutes.
Please wait...
```

The system must be rebooted in order for testing to be continued.

3.2 Diagnostic-Based Problems

3.2.1 Communication Devices

The following communication devices cause diagnostic problems.

3.2.1.1 LANCE - diagnostic does not include device name in setup

The lance diagnostic does not include the device name within its SETUP message.

3.2.1.2 DMV11

When the DMV11 and the DRQ3B exercisers are run together on multiple passes, the DMV11 occasionally generates the following error:

```
Error 1402 - Transmit/Receive error using external loopback
```

This error occurs on all CPUs. The DMV11 runs alone successfully, but when the DRQ3B is added to the system, the error occurs intermittently. The error does not happen right away; 30 minutes may pass.

3.2.1.3 DZV11/nadzaf - Fails exerciser test 1 with DTQNA in config

A bus timing problem has been discovered with the DZV11/DZQ11/DTQNA configured in a system. The failure occurs with the DZV11 as the second DZA device. This failure only occurs after the initial boot, not after a reset config or config. The failure has also been observed when the DZV11 is the first DZA device in the configuration, but the frequency of occurance is less.

The failure has been observed when the bus is set up as follows:

```
nakaa   160000  000
namta   160000  000
narxa   172150  154
natka   174500  260
nadza   160100  300     dzq11
nadza   160110  310     dzv11
nadha   160500  320
nazqa   172570  330     dtqna
naxqa   174440  120
```

3.2.1.4 DTQNA/nazqaa - cumulative pass count as printed is confusing

There is a progress message printed out during the running of exeerciser and functional tests which gives the total count of the number of passes of all tests which have been run. This counter is incremented each time the diagnostic runs a pass of any test and prints the message after every ten passes. When the monitor prints out the following messages it could be confusing to the operator as to exactly how many passes were executed: pass 1 test 1 started pass 2 test 1 started the test has run 10 passes

3.2.1.5 DMV11/DTQNA - Fails all tests with DTQNA in config

If either of the two diagnostics (DTQNA or DMV11) is run alone, they will pass the diagnostics. If they are run together, either or both will fail various tests. For example:

```
SERVICE/EXERCISER - DTQNA - Err #60 - Device did not interrupt
                            Err #61 - Command bit not set
```

The DMV11 also fails various tests during this time. The failure in the DTQNA is especially evident when the system has more devices in it, such as:

```
uVAXII, DTQNA, DMV11, DRQ3B, DRV11WA, DRV11J, RQDXA, TK70,
DEQNA
```

Under these conditions, the DTQNA would not pass VERIFY/FUNCTIONAL tests.

3.2.2 Storage Devices

The following storage devices cause diagnostic problems.

3.2.2.1 TU81 - Utility 1 message gets truncated

When running utility 1 for the TU81 diagnostic, it may be necessary to respond to the question "Do you want the default record size (4096 bytes) ? y or n". If this question is answered with yes, the following prompt will be displayed:

```
Input fixed # of bytes record size from 12 to 8192 bytes
                                                    or enter 0 fo"
```

The ending of the message should read "for random size.: >"

Also, although the setup message requests a number from 12 to 8192, the highest and lowest values are not considered valid.

3.2.2.2 DSSI

When you run the verify test 4 of the DSSI and have the drive off line, the test fails. The verify tests are supposed to run whether or not a drive is attached and on line. This is only a READ test, but still needs the DUP code to run, which does not happen if the drive is off line.

3.2.2.3 KDA50-QA

The RA82 drive must be spun up in order for the verify mode test to pass. If they are not ready, the following error appears:

```
An unrecoverable error has occured on drive number 0.
Error occurred during MSCP Online command.
MSCP Command Reference Number: 00000003.
MSCP Command status: Drive unit offline
MSCP status subcode: No volume mounted or run/stop switch is off

KDA50QA - Error Number 47 29-JUN-1988 08:00:00.48
Drive became "unit-offline" during a MSCP operation.
Fixed media disk drive
KDA50QA failed.
```

3.2.2.4 RRD50

Running utility test 5 takes longer than 1 hour. During that time no progress messages are displayed to inform the user that the diagnostic is still running. The MDM monitor displays the message “return status 34” indicating no messages from the diagnostic have occurred during that time.

3.2.2.5 RRD40/50 - Service functional tests depend on previous ver tests

When running the rrd40/50 diagnostic in the above configuration, all the Service Functional tests seem to be dependent on whether or not any of verify tests 11-17 are run previously. If any of the test 11-17 are run followed by a Service mode test then the following will happen: (here tests are set to 11 and 18)

```
RRDXXA pass 1 test number 11 started.
Port being tested is: A
There is no drive connectected to Port A, Port A Dropped from
                                                          Testing.
Port being tested is: B
RRDXXA pass 1 test number 18 started.
Port being tested is: B
RRDXXA passed.
```

However if you now configure the rrd diagnostic and then immediately run test 18 you will see the following bad error message:

```
RRDXXA pass 1 test number 18 started.
Port being tested is: A
There is no drive connectected to Port A, Port A Dropped from
                                                          Testing.

RRDXXA - Error Number 100080718
RRD50/RRD40 Drive A Unavailable for testing.
DIGITAL DISC CABLE/DRIVE A


Port being tested is: B
RRDXXA failed.
```

Each test should be independent of all other tests thus when test 18,19,20 or 21 is run alone it should behave the same as when it follows any of tests 11-17.

3.2.2.6 RRD40/50 - Diag doesn't declare units, fails if no drives

Each KRQ50 controller has two ports on it and can handle UP TO two units (both rrd40's and/or rrd50's). The diagnostic NARRA should be declaring the units that are attatched to the controller. This allows the user to know what kind of drives are attatched to each port and the diagnostic to test according to what drives are actually out there instead of blindly testing on the assumption that there is a drive attached to each port. Currently, the diagnostic will test all ports, regardless of whether or not there is a drive attached. This causes false errors when there is no drive.

3.2.2.7 TK50/TK70 - fails verify tests if drive offline

When running the customer kit, there are no setup messages to tell the customer that a tape needs to be in the drive and the drive has to be online to run the test. If the drive is offline or there is no tape in the drive, the only message returned is that the TK50/70 failed.

3.2.2.8 RQDX - Diagnostic displays incorrect fru messages

The RQDX diagnostic displays incorrect FRU's for certain errors that occurr when it is testing a hard drive and/or a floppy drive. For example if a hard drive is not formatted correctly and the functional tests are run on that drive the following error will occurr during test 3

```
There are two reasons that drive 0 was not able to come on line.
        1. The drive is not formatted correctly
        2. The drive is broken

      RQDXA - Error Number 20599
      A media format error has been detected on drive 0.
      The drive PCB and/or the Drive is the fru
```

However when test 4 is run the following error and fru is reported: There are two reasons that drive 0 was not able to come on line. 1. The drive is not formatted correctly 2. The drive is broken RQDXA - Error Number 30599 A media format error has been detected on drive 0. The media is the fru This is confusing because here it says the media is the fru when hard drives don't have replaceable media - instead it should declare the fru as:

```
      The drive PCB and/or the Drive is the fru
```

Also When a test is run on an RX50 with either no floppy in it or it is in it upside down the following error message will be displayed

```
      Drive # 1 is offline or there is no media in drive.

      RQDXA - Error Number 10301
      Drive 1 is offline or there is no media.
      The drive PCB and/or the Drive is the fru
```

3.2.2.9 KDA - Fatal bugcheck during config if non-existant CSR used

When using a KA650 cpu, with no KDA board, and connecting in a non-existant CSR address for a kda followed by a configure the system, the diagnostic should look to see if a device is at the specified address, and when there is no response, disconnect itself. This does work with a Microvax CPU but produces a fatal bugcheck if the CPU is a KA650.

The following are the detail messages produced.

```
***** Fatal Bugcheck, VAXELN V3.2 FATLMEMERR, unrecoverable memory
                                                              error

        current job = 000300c2

        Program Name= NAKDA


Press return to view remainder of bugcheck info.............

        Register Dump

                R0 = 8018ac78
                        .
                        .
                        .
                PSL=041d0008

        Kernel/Interrupt Stack

                800747f8../....


  system shutdown complete
```

3.2.3 Miscellaneous Problems

This section contains problems with devices other than communication and storage devices.

3.2.3.1 VSV21 - Diag can raise eln NO_ACCESS violation in util 1

The VSV21 diagnostic can raise an ELN NO ACCESS VIOLATION and get disabled during Utility test 1.

Utility test 8 for the VSV21 diagnostic is the VSV21/VSV90 selection utility. If this utility test gets started and then the test gets CTRL/C - HALTED, the next time utility 1(Monitor test picture util) is started up and either seletion 1,2,3, or 4 is chosen the diagnostic will get disabled by the monitor due to it raising a NO ACCESS violation.

3.2.3.2 DTC04/TK50 - If TK50 exers run, then DTC04 will disable during config

The DTC04 diagnostic will disable itself during configuration if the verify exerciser for the tk diagnostic has been run previously and then a Reset config is performed followed by the Configure.

3.2.3.3 MIRA

When running utility tests 3, 4, or 5 on the MIRA and after the individual general SETUP messages are displayed, the user is prompted to enter a 1 or 2 and press [RETURN], corresponding to the particular mode (maintenance or installation) that the user is in.

If the user enters an out-of-range number (either 0 or greater than 2), the cursor drops to the beginning of next line and waits there. Then, if the user enters either a 1 or 2 and presses [RETURN], the test continues according to which value was entered.

3.2.3.4 MIRA - Utilities 3,4,5 Display DSL$ Messages

If you press [RETURN], the following message is displayed and the test ends:

```
ERROR::DSL$NULL_VALUE
Mira failed, testing terminated.
```

Also if you type anything other than a number, you get a similar message:

```
ERROR::DSL$NON_DECIMAL
Mira failed, testing terminated.
```

3.2.3.5 VSV21 - set up message does not include device name

The set up message for the vsv21 does not include the device name within it. This can be confusing when starting up many devices which all display their setup messages - it is not clear which device is issuing the the prompts. The set up message for the vsv21 is as follows:

```
PLEASE ENSURE THAT LOOPBACK CONNECTORS ARE FITTED
Then press Return to continue...
```

Instead it should include the device name within the message, possibly as follows:

```
PLEASE ENSURE THAT LOOPBACK CONNECTORS ARE FITTED TO THE VSV21
Then press Return to continue...
```

3.2.3.6 DELIX - Fails Verify/Functional test

When running in Verify/Functional mode, using release 126V, 127E, or 128V DELIX failures occur as follows: 1) Error #19 - Shared memory error. Bad status read back. 2) Error #15 - 30 Ms interrupt timed out. M3114 PBX line card. The other modes of testing seem to work okay. Two methods of "connecting" the diagnostic were used. One was to connect it over the tk csr/vector and the other method was to connect it at the next available csr/vector locations.

3.2.3.7 LNV11 - Diagnostic does not declare any service exercisers

The current revision(C rev) of the lnv11 diagnostic does not declare the required service mode exerciser tests. This causes problems when running the diagnostic out of the service menu mode. If you try to run the 'exercise the system' selection from within the service menu then the diagnostic fails because it does not have a service mode exerciser tests declared. This also causes similar problems when manufacturing is running the lnv11 under APT because it defaults to testing the service mode exercisers also.

3.2.3.8 ADV11D-A - Gets fatal bugcheck with utility 5 and 6

When testing the utilities for the ADV11-DA, number 5 and 6 are looking for a CSR of a second device. Since the device is not a part of this setup, "ctrl/c" is typed and then "halt" to exit the test. The system responds with the following message and then crashes:

```
Fatal bugcheck, VAXELN V3.2 FATLMEMERR, unrecoverable memory error
Current Job = 000300c2
Program Name = NAADA
```

```
Test 5 of the utility is "D/A-A/D loopback test"
Test 6 of the utility is "Real time clock start test"
```

3.2.3.9 AAV11D - Util 12 gives FATAL BUGCHECK when CTRL/C, HALT

In a system with a KA640, DSSI, LANCE, DESQA and AAV11D, if Utility test number 12 is run on the AAV11D diagnostic, the user is prompted as follows:

```
Enter the base CSR of the kwv11-C in use(default 170420 octal):
```

If the user then presses CTRL/C - HALT at this pointan ELN fatal bugcheck occurs as follows:

```
**** Fatal Bugcheck, VAXELN V3.2 FATLMEMERR, unrecoverable memory
                                                              error
```

```
Current Job = 300d2

Program name = NAAAA
```

and then the registers get dumped. This bugcheck also occurs if at the above prompt, instead of CTRL/C halting, the user enters the address' 160000 - 160004. If the user enters any other incorrect address' then they will get a message saying to enter another address. This did not occur on a microVAX II system.

3.2.3.10 DIV32 - Diag disables if bulkhead connector is not connected

If the div32 is run without being connected to its io bulkhead it will appropriately fail its tests. However, the diagnostic will then disable with the ELN exception number %x 47c (arithmetic trap, integer overflow).

For example when verify exerciser test 1 is run on the DIV32 it will fail as follows:

```
DIV32A - Error number 1001
Verify Mode Exerciser failed
bad configuration. I/O panel or bable missing

Failed to complete command (no interrupt)

DIV32A - Error Number 1055
Verify Mode Exerciser failed
DIV32-M or its cable lit (cable + io panel)

Timed out waiting for response

DIV32A - Error Number 1058
Verify Mode Exerciser failed
DIV32-M or its cable lit (cable + io panel)
```

It continues to spit out a few more errors (# 1065 and 1057) then we get the message

```
DIV32A failed, testing terminated
```

and the diagnostic gets disabled with message %x47c and subsequently either a reset config and config has to be performed or the monitor has to be rebooted in order for testing to continue on the diagnostic.

The failure messages clearly state the problem , however, the diagnostic should not disable.

This does not seem to be CPU dependent because it does disable the same way when run on a Microvax II.

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